



Audio

FULL DETAILS AND TRANSCRIPT

Establishing a Cohesive Mathematics Curriculum

Twin Groves Middle School, Illinois • May 2008

Topic: National Math Panel: Critical Foundations for Algebra

Practice: Mathematics Preparation for Algebra

Highlights

- Development of power standards based on state standards
- Vertical alignment (K-8) as key to achieving at greater levels
- Staff meet across grade levels to identify skill repetitions and gaps
- Example of development of fraction concepts across grades: Moving from manipulatives, to algorithms, to use of fractions, in computation to rational equations
- Benefit of common vocabulary
- Challenges: Finding time for collaboration across levels; giving up past teaching activities and practices if not aligned

About the Site

Twin Groves Middle School

Buffalo Grove, IL

Demographics

83% White

15% Asian

2% Hispanic

1% Black

1% Free or Reduced-Price Lunch

2% English Language Learner

Staff from Twin Groves Middle School have been active participants in the district's processes of vertical alignment of standards and development of power standards. Distinctive features of the school's approach include:

- Vertical alignment process to identify overlaps and gaps in curriculum,
- Development of power standards to guide curriculum and assessment,
- Specific standards for advanced and honors math,
- Analysis of power standards to develop well-aligned formative assessments,
- Use of computerized assessment and reporting system,
- Variety of types of formative assessments, including observation during in-class lessons, and
- Intervention options for struggling students.

Full Transcript

This is Paul Louis. I am the Director of Curriculum and Instruction for School District 96 Kildeer. One of our big district philosophies is to introduce concepts early. The key topics are all based on our power standards; and our power standards are based on our state standards. We also work collaboratively with our high school, so that we are creating a continuous strand of mathematics.

I am Marie Schalke. I am the principal at Twin Groves Middle School in Buffalo Grove. In our school, we really believe that vertical alignment is the key to our students' success in achieving at greater levels. The goal was to develop a vertical alignment from kindergarten all the way through 8th grade, so that students could build on their knowledge from one year to the next. The teachers made a list of the standards that they believed fit into their course, at their grade level. And then, when that process was completed, they met together as a team, between the grade levels, looking at the standards that were identified for the grade before and after theirs; and in that process, looked for the repetition of skills, and the gaps in standards that seemed to be missing from all levels. When there was repetition, the teachers would collaborate and they would determine where the standard best fits—in terms of what grade level and which course it belonged in—and, it was eliminated from the other levels. When there were gaps, the teachers then again had conversations to decide at what level that particular standard should be addressed and in what way, and then it was added to that particular list of standards for that curriculum framework.

One example of this process would be the development of the fraction concepts. In our 6th grade, for

instance, students would be taught to use manipulatives for a problem such as $\frac{3}{4} + \frac{1}{2}$, where they would use fractions stacks or fraction tiles and actually be able to see how they would need a common denominator in order to come up with an answer. When those students move to 7th grade, they would be working on developing the algorithm, that would then lead them to the solution to a problem like $\frac{3}{4} + \frac{1}{2}$; and then, once the algorithm is developed, then students understand that they would be applying it in fraction computation. As those same students move to pre-algebra, they would be using the fraction concepts that they have developed to gain a further understanding, as they use them in simple rational equations such as $x/3 + 2x/5$. And then as students move into algebra, they would use those same fraction concepts as they solved simple equations. A concept is continuously built on, and as the students develop an understanding of how it works and why it works, they are able to apply it at a higher level. One of the big advantages of the vertical alignment, is that the students have a common background as they build the skills, they use a common vocabulary; and therefore, they are able to move ahead at a quicker rate because they are not relearning things in a slightly different way.

Louis: If I was going to share some of our greatest challenges, one of them, that we always seem to face, is the time to get all of that work done—to be able to find that collaboration time. Another challenge that we had was about teachers having to give up some of their past practices. When we have moved to power standards—that meant that we are all focusing on exactly the same thing—which we think is critically important, but we did have some resisters along the way because they had some favorite projects, some favorite standards that maybe not were included in our power standards.

And then another challenge that we had was to come to a consensus about our assessment system, because once we identified the most important things for our kids to know and be able to do, our second challenge was to identify a way to find out if they did know those things. So, to create that coherent assessment system to monitor progress towards those power standards was a challenge that we took head-on.